

CLAIMS

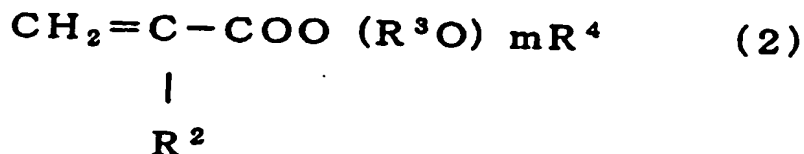
1. A cement dispersant comprising a water-soluble amphoteric copolymer, or a partly or a fully neutralized salt thereof, the copolymer being formed by copolymerizing a monomer mixture containing as a primary monomer component,
at least one compound (compound A) obtained by addition of 0 to 8 moles of an alkylene oxide having 2 to 4 carbon atoms with respect to one equivalent of amino residues in a polyamide polyamine obtained by condensation of 1.0 mole of a polyalkylene polyamine, 0.5 to 0.95 moles of a dibasic acid or an ester of dibasic acid with a lower alcohol having 1 to 4 carbon atoms, and 0.05 to 0.70 moles of acrylic acid or methacrylic acid, or an ester of acrylic acid or methacrylic acid with a lower alcohol having 1 to 4 carbon atoms;
at least one compound (compound B) represented by general formula (1)



(in the formula, R^1 represents a hydrogen atom or a methyl group, and M represents a hydrogen atom, an alkali metal, an alkali earth metal, an ammonium group, or an alkanol ammonium);

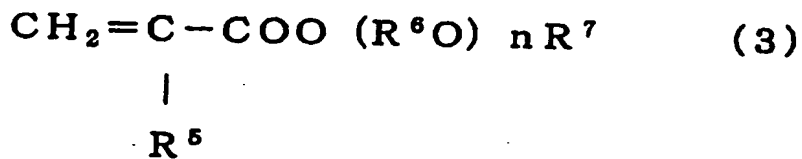
at least one compound (compound C) represented by general

formula (2)



(in the formula, R^2 represents a hydrogen atom or a methyl group, R^3 represents an alkylene group having 2 to 4 carbon atoms, R^4 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and m represents the number of addition molecules of a polyalkylene glycol and is an integer of 1 to 35); and

at least one compound (compound D) represented by general formula (3)



(in the formula, R^5 represents a hydrogen atom or a methyl group, R^6 represents an alkylene group having 2 to 4 carbon atoms, R^7 represents a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and n represents the number of molecules of a polyalkylene glycol for addition and is an integer of 40 to 100).

2. The cement dispersant according to Claim 1, wherein, when

the total of the compounds A to D is set to be 100 percent by weight, the water-soluble amphoteric copolymer is obtained by copolymerizing 5 to 25 percent by weight of the compound A, 5 to 30 percent by weight of the compound B, 5 to 40 percent by weight of the compound C, and 20 to 80 percent by weight of the compound D.

3. The cement dispersant according to Claim 1 or 2, wherein, when the number of molecules of the dibasic acid or the ester of the dibasic acid with a lower alcohol having 1 to 4 carbon atoms is represented by x, and the number of molecules of acrylic acid or methacrylic acid, or the ester of acrylic acid or methacrylic acid with a lower alcohol having 1 to 4 carbon atoms is represented by y with respect to 1.0 molecule of the polyalkylene polyamine, conditions of the following equation: $0.6 < y/(1-x) < 1.4$ are satisfied.

4. A concrete admixture for mortar and concrete, comprising a mixture which contains the cement dispersant according to one of Claims 1 to 3 and at least one additive for mortar and concrete selected from the group consisting of a cement dispersant different from said cement dispersant, a defoaming agent and an air-entraining agent.

5. A concrete composition comprising the cement dispersant according to one of Claims 1 to 3.

6. A concrete composition comprising the cement admixture for mortar and concrete according to Claim 4.

7. The concrete composition according to Claim 5 or 6, wherein the concrete composition is used for ultrahigh performance concrete.